

REMARKS

Claims 1-4, 7-12 and 17-21 are pending in the current application. Claims 5, 6, 15 and 16 are canceled. Claims 1 and 2 are amended. The amendments to claims 1 and 2 are supported at least by lines 18-21 of Applicants' originally filed application.

Claim Rejections - 35 U.S.C. § 103

Claims 1-12, 15-16 and 19-21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Quate (US 5,888,371, hereinafter "Quate") in view of Black et al. (US 2004/0164363, hereinafter "Black"). Applicants respectfully traverse this rejection.

Claim 1 recites "a mechanical force is applied in a scanning direction so that the crystals and/or molecules are oriented in the scanning direction". Neither Black, nor Quate, alone or in combination, teach or suggest this limitation.

With respect to Quate, Quate discloses a technique in which, by applying voltage to a probe, an aperture is formed on a thin TiO₂ film with the use of an electric force (Quate: col. 4, ln. 42-45). Quate also teaches the use of a scanning probe microscope (SPM) tip to form an oxide pattern. Applicants submit, Quate teaches the use of electrical force, **not mechanical force** as claim 1 requires. Further, the Examiner admits Quate fails to teach a crystalline structure of crystals constituting the film, an orientation direction of crystals constituting the film, an orientation direction of molecules in the crystals, or any combination thereof as claim 1 also requires (*August 29, 2008 Office Action*: page 3, ln. 10-12).

The Examiner then relies on Black by asserting Black teaches a crystalline structure of crystals constituting the film, an orientation direction of crystals constituting the film, an orientation direction of molecules in the crystals. Applicants note, FIGS. 7 to 10 of Black disclose a technique to form a dielectric film having a film

thickness of approximately 1nm as a result of packing nanoparticles into an ordered monolayer by compression of the nanoparticles (*Black*: [0050]; FIGS 7-10). Applicants further note paragraph [0058] of *Black* discloses that, in a case where the nanoparticles are made of ferroelectrics, the orientation of crystalline particles of the nanoparticles can be controlled. *Black* discloses that as a result, the ferroelectric polarization can be aligned.

Applicants respectfully submit that though the process of compression of nanoparticles disclosed by *Black* may appear to be a process performed by mechanical force, this process of compression is simply a process for putting nanoparticles in order and packing the nanoparticles into a monolayer. The process of compression disclosed in *Black* is neither a process for controlling an orientation of crystals and/or molecules nor is it a process carried out by scanning with the use of a probe, as is required by claim 1. Accordingly, Applicants respectfully submit nothing in either *Quate* or *Black*, alone or in combination, teaches or suggests applying a mechanical force to a film "in a scanning direction so that the crystals and/or molecules are oriented in the scanning direction" as claim 1 requires. Consequently, neither *Quate*, nor *Black*, alone or in combination, teach each of the limitations in claim 1, or any of the claims which depend from claim 1, as is required to support a rejection under §103.

Additionally, claim 2 includes limitations at least somewhat similar to those of claim 1. Consequently, at least by virtue of the similarities between claim 1 and claim 2, neither *Quate*, nor *Black*, alone or in combination, teach each of the limitations in claim 2, or any of the claims which depend from claim 2, as is required to support a rejection under §103.

Therefore, Applicants respectfully request the rejection of claims 1-4, 7-12, and 19-21 under 35 U.S.C. § 103(a) be withdrawn.

Claims 17-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Quate as applied to claim 1 above, and further in view of Lee et al. (US 2006/0151779, hereinafter "Lee").

First, MPEP § 1893.03(b) (8th ed., Rev. 7, 2008) states the following:

An international application designating the U.S. has two stages (international and national) with the filing date being the same in both stages. Often the date of entry into the national stage is confused with the filing date. It should be borne in mind that the filing date of the international stage application is also the filing date for the national stage application. Specifically, **35 U.S.C. 363** provides that

An international application designating the United States shall have the effect, from its international filing date under Article 11 of the treaty, of a national application for patent regularly filed in the Patent and Trademark Office except as otherwise provided in section **102(e)** of this title.

Applicants note, the international PCT application filing date of the instant application is September 11, 2003 which predates the June 7, 2005 US filing date of Lee. Accordingly, Applicants respectfully submit, Lee does not qualify as a prior art reference with respect to the instant application under §103(a).

Further, the deficiencies of Quate are discussed above and are relevant here because claim 17 depends from claim 1, and claim 18 depends from claim 2. Lee fails to remedy these deficiencies at least because Lee likewise fails to teach applying a mechanical force to a film "in a scanning direction so that the crystals and/or molecules are oriented in the scanning direction" as claims 1 and 2 require. Consequently, neither Quate, nor Lee, alone or in combination teach each of the limitations in either of claims 17 and 18 as is required to support a rejection under §103.

Therefore, Applicants respectfully request the rejection of claims 17-18 under 35 U.S.C. § 103(a) be withdrawn.

CONCLUSION

Accordingly, in view of the above amendments and remarks, reconsideration of the objections and rejections and allowance of each of claims 1-4, 7-12 and 17-21 in connection with the present application is earnestly solicited.

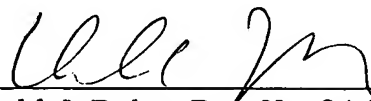
Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Donald J. Daley at the telephone number of the undersigned below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKY, & PIERCE, P.L.C.

By


Donald J. Daley, Reg. No. 34,313

P.O. Box 8910
Reston, Virginia 20195
(703) 668-8000

DJD/JHA: tlt